

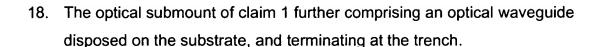
CLAIMS

What is claimed is:

- 1. An optical submount comprising:
 - a) a substrate;
 - b) a trench in the substrate for holding an optoelectronic device on-edge;
 - c) an electrical connection pit adjoining the trench; and
 - d) a metallization layer in the electrical connection pit.
- 2. The optical submount of claim 1 further comprising a groove in the substrate adjoining the trench.
- 3. The optical submount of claim 2 further comprising an optical fiber disposed in the groove.
- 4. The optical submount of claim 2 wherein the groove is adjacent to the electrical connection pit.
- 5. The optical submount of claim 2 wherein the groove is perpendicular to the trench.
- 6. The optical submount of claim 2 wherein the groove and electrical connection pit are disposed on opposite sides of the trench.
- 7. The optical submount of claim 1 further comprising an optoelectronic device disposed in the trench.

8. The optical submount of claim 7 wherein the optoelectronic device includes a contact pad, and the contact pad is soldered to the metallization layer.

- 9. The optical submount of claim 7 further comprising a groove in the submount aligned with an active area of the optoelectronic device.
- 10. The optical submount of claim 1 comprising two electrical connection pits.
- 11. The optical submount of claim 10 wherein the two electrical connection pits have different depths.
- 12. The optical submount of claim 10 wherein the two electrical connections pits are disposed on the same side of the trench.
- 13. The optical submount of claim 1 wherein the electrical connection pit is at least partially filled with solder.
- 14. The optical submount of claim 1 wherein the trench is a trench formed by a dicing saw.
- 15. The optical submount of claim 1 wherein the trench is a trench formed by directional dry etching.
- 16. The optical submount of claim 1 wherein the substrate comprises <100> silicon, and the electrical connection pit is an anisotropically wet etched pit.
- 17. The optical submount of claim 1 further comprising a lid disposed over the substrate.



- 19. The optical submount of claim 1 wherein the trench does not extend to an edge of the substrate.
- 20. An optical device, comprising:
 - a) a substrate;
 - b) a trench in the substrate;
 - c) an electrical connection pit adjoining the trench;
 - d) a metallization layer in the electrical connection pit; and
 - e) an optoelectronic device disposed on-edge in the trench, wherein the optoelectronic device has a contact pad soldered to the metallization layer.
- 21. The optical submount of claim 20 further comprising a groove in the substrate adjoining the trench.
- 22. The optical submount of claim 21 further comprising an optical fiber disposed in the groove.
- 23. The optical submount of claim 21 wherein the groove is perpendicular to the trench.
- 24. The optical submount of claim 21 wherein the groove and electrical connection pit are disposed on opposite sides of the trench.
- 25. The optical device of claim 21 wherein the groove is aligned with an active area of the optoelectronic device.

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26. The optical submount of claim 20 wherein the trench is a trench formed by a dicing saw.

- 27. The optical submount of claim 20 wherein the trench is a trench formed by directional dry etching.
- 28. The optical submount of claim 20 wherein the substrate comprises <100> silicon, and the electrical connection pit is an anisotropically wet etched pit.
- 29. The optical submount of claim 20 further comprising a lid disposed over the substrate.
- 30. The optical submount of claim 20 further comprising an optical waveguide disposed on the substrate, and terminating at the trench.
- 31. The optical submount of claim 20 wherein the trench does not extend to an edge of the substrate.